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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/708,465      | 03/05/2004  | Paul Hollandsworth   | 040078              | 2464             |

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EXAMINER

SY, MARIANO ONG

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3683

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                                     |                                      |   |  |
|-------------------------------------|--------------------------------------|---|--|
| <p><b>Office Action Summary</b></p> | <b>Application No.</b><br>10/708,465 | <b>Applicant(s)</b><br>HOLLANDSWORTH ET AL. |  |
|                                     | <b>Examiner</b><br>Mariano Sy        | <b>Art Unit</b><br>3683                     |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03152004</u> . | 6) <input type="checkbox"/> Other: ____.  |

### **DETAILED ACTION**

1. The Electronic Information Disclosure Statement (IDS) filed on March 15, 2004 has an improper electronic signature.

2. The disclosure is objected to because of the following informalities:

page 12, par. [0034], line 18 "the BO" should be --the BP--,

page 13, par. [0036], line 6 "pressure" should be --pressure. --,

claim 4, line 3 "handle" should be --handle. --,

claim 7, line 5 "pipe" should be --pipe. --,

claim 10, line 9 "anda" should be --and a--,

claim 13, line 3 "microcontrollers" should be --microcontrollers. --,

claim 15, last line "handles" should be --handles. --,

claim 25, line 4 "pipe" should be --pipe. --,

claim 26, last line "pipe" should be --pipe. --,

claim 28, last line "valves" should be --valves. --,

claim 29, line 3 "micro processors" should be --microprocessors--,

claim 29, line 3 "micro controller" should be --microcontroller--,

claim 29, last line "valves" should be --valves. --.

Appropriate correction is required.

### ***Drawings***

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3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "68" in fig. 4 has been used to designate both "directional digital I/O ports", see par. [0044], line 7 and "CAN transceivers 67 and 68", see page 18, line 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to because Fig. 6 because a section of the figure on the left hand side is missing. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several

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views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-4, 8-11, 15, 19-21, and 27-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "said field replaceable units" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "each of said electronic microcontrollers" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 1, line 13 recites "an electronic controller".

Claim 9 recites the limitation " said electronic microcontrollers" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation " said electronic microcontrollers" in

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line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "said portion-specific software" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "said redundant microprocessors" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "said network of distributed microcontrollers" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "said redundancy control circuit" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "said redundancy control circuit" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 27 recites the limitation "said gateway" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim 27 recites the limitation "said locomotives network" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim 29 recites the limitation "said redundancy control circuitry" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Pettit et al. (US 6,135,574).

Re-claims 1, 5-9, 12-14, 16, 17, 22-26, and 30 Pettit et al. disclosed, as shown in fig. 4-14, a locomotive having one or more pneumatic brake cylinders, a brake pipe, an independent application and release pipe and an actuating pipe, an electronic braking control comprising: a pneumatic manifold 104 containing pneumatic links to said one or more pneumatic brake cylinders, said brake pipe, and said independent application and release pipe and an actuating pipe; a brake cylinder control portion BC, a brake pipe control portion BP, and an IAR/ACT control portion 13,16,20 all portions pneumatically linked to said pneumatic manifold and each of said portions being controlled by a microcontroller and all said portions are field replaceable units; wherein said pneumatic links between said portions and said manifold are automatically connected when said portions are physically secured to said manifold; and wherein said controllers controlling said portions are arranged in a distributed manner and are linked via one or more networks.

Re-claim 2 Pettit et al. disclosed, as shown in fig. 4-14, wherein each of said portions has an electrical connection providing power and external inputs and outputs for said portions.

Re-claims 3, 4, and 15 Pettit et al. disclosed, as shown in fig. 4-14, further comprising: a brake handle unit having an independent brake handle 32 and an automatic brake handle 31, said brake handle unit being coupled to plurality of

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distributed microcontrollers, said microcontrollers receiving signals from said brake handle unit via said network regarding movement and position of said brake handles.

Re-claims 10, 11, 18, and 19 Pettit et al. disclosed, as shown in fig. 4-6, wherein said portions further comprises: a plurality of pressure transducers and a plurality of solenoids for opening and closing valves; wherein said of said microcontrollers further comprises a plurality of inputs for reading said plurality of pressure transducers and a plurality of outputs for controlling said plurality of solenoids; wherein redundancy control circuit to control plurality of outputs for controlling said solenoids.

Re-claim 20 Pettit et al. disclosed, as shown in fig. 4-14, wherein the redundancy control portion receives a periodic watchdog signal and a fault signal from each of said redundant microprocessors.

Re-claim 21 Pettit et al. disclosed, as shown in fig. 4-14, wherein further comprising: a gateway linking said one or more redundant networks with a locomotive network; and translating messages to and from a format compatible with said locomotive network.

Re-claim 27 Pettit et al. disclosed, as shown in fig. 4-14, wherein said portions control said pressures under the control of software running in said distributed microcontrollers, said microcontrollers receiving input from: said brake cylinders, brake pipe and IAR/ACT via a plurality of transducers read by microcontrollers; said brake handle unit, via said network; and a computer located on said locomotive, via a gateway between said network.



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Re-claim 28 Pettit et al. disclosed, as shown in fig. 4-14, wherein said microcontrollers controls said pressures via a plurality of solenoid-controlled valves.

Re-claim 29 Pettit et al. disclosed, as shown in fig. 4-14, wherein said redundancy control portion decides which of said redundant microprocessors and microcontroller controls said solenoid-controlled valves.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Makino (US 5,001,641)

Root et al. (US 5,172,316)

Cook et al. (US 5,924,774)

Newton et al. (US 6,035,250)

Sherwood et al. (US 6,098,006)

Root et al. (US 6,318,811)

Marra et al. (US 6,484,085)

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariano Sy whose telephone number is 703-308-3427.

The examiner can normally be reached on Mon.-Fri. from 9:00 A.M. to 3:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bucci, can be reached on 703-308-3668. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*msy* M. Sy

March 23, 2005

*M. L. Graham*  
3/24/2005  
**MATTHEW C. GRAHAM**  
**PRIMARY EXAMINER**  
**GROUP 310**